

Barnstable County Retirement System

*Actuarial Valuation and Review
as of January 1, 2007*

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August 24, 2007

*Retirement Board
Barnstable County Retirement System
750 Attucks Lane
Hyannis, MA 02601*

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of January 1, 2007. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2008 and later years and analyzes the preceding year's experience.

The census and financial information on which our calculations were based was prepared by the staff of the Barnstable County Retirement System. That assistance is gratefully acknowledged. The actuarial calculations were completed under my supervision.

This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

THE SEGAL COMPANY

By:

*Kathleen A. Riley, FSA, MAAA, EA
Senior Vice President and Actuary*

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SECTION 1: Valuation Summary for the Barnstable County Retirement System

Purpose

This report has been prepared by The Segal Company to present a valuation of the Barnstable County Retirement System as of January 1, 2007. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of M.G.L. Chapter 32;
- The characteristics of covered active participants, inactive participants, and retired participants and beneficiaries as of January 1, 2007;
- The assets of the Plan as of December 31, 2006;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- The actuarial valuation report as of January 1, 2007 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected.
- During the plan year ended 2006, the market value rate of return was 13.61%. Because the actuarial value of assets gradually recognizes market value fluctuations over a five-year period, the actuarial rate of return for the plan year ended 2006 was 8.73%. The actuarial value of assets as of December 31, 2006 was \$517.4 million, or 98.3% of the market value of assets. As of December 31, 2005, the actuarial value was 102.7% of the market value of \$36,943,817.
- The unfunded liability has increased from \$300.1 million as of January 1, 2006 to \$308.5 million as of January 1, 2007. The increase is primarily due to pension mortality.
- Because the fiscal 2008 appropriation has already been budgeted at \$34,360,912, the results of this valuation will first be reflected in the fiscal year 2009 appropriation of \$36,943,817. This amount is \$139,621 higher than reflected in the prior valuation report. The unfunded liability will be fully amortized by June 30, 2028.

SECTION 1: Valuation Summary for the Barnstable County Retirement System

Summary of Key Valuation Results

	January 1, 2007	January 1, 2006
Contributions:		
Recommended for fiscal 2008 and 2007	\$34,360,912	\$32,038,146
Recommended for fiscal 2009 and 2008	36,943,817	34,360,912
Funding Elements:		
Normal cost, including administrative expenses	\$33,433,194	\$31,772,580
Market value of assets	526,487,863	453,430,697
Actuarial value of assets	517,396,087	465,637,984
Actuarial accrued liability	825,863,068	765,747,723
Unfunded actuarial accrued liability	308,466,981	300,109,739
GASB 25/27:		
Annual required contributions	\$34,360,912	\$31,044,132
Actual contributions	--	31,044,132
Percentage contributed	--	100.00%
Funded ratio – actuarial value of assets	62.65%	60.81%
Funded ratio – market value of assets	63.75%	59.21%
Demographic Data:		
Number of retired participants and beneficiaries	2,267	2,201
Number of inactive participants entitled to a return of their employee contributions	670	688
Number of inactive participants with a vested right to a deferred or immediate benefit	117	77
Number of active participants	5,314	5,269
Total payroll	\$216,027,771	\$205,640,594
Average payroll	40,653	39,028

SECTION 2: Valuation Results for the Barnstable County Retirement System

A. PARTICIPANT DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered participants, including active participants, inactive participants, retired participants and beneficiaries.

This section presents a summary of significant statistical data on these participant groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A and B.

A historical perspective of how the participant population has changed over the past six valuations can be seen in this chart.

CHART 1

Participant Population: 1997 – 2006

Year Ended December 31	Active Participants	Inactive Participants	Retired Participants and Beneficiaries
1997	4,229	501	1,730
1999	4,713	664	1,816
2001	4,970	899	1,952
2003	5,031	834	2,125
2005	5,269	765	2,201
2006	5,314	787	2,267

SECTION 2: Valuation Results for the Barnstable County Retirement System

Active Participants

Plan costs are affected by the age, years of service and payroll of active participants. In this year's valuation, there were 5,314 active participants with an average age of 46.2, average years of service of 9.8 years and average payroll of \$40,653. The 5,269 active participants in the prior valuation had an average age of 46.1, average service of 9.6 years and average payroll of \$39,028.

Among the active participants, there were none with unknown age and/or service information.

Inactive Participants

In this year's valuation, there were 117 participants with a vested right to a deferred or immediate vested benefit.

In addition, there were 670 participants entitled to a return of their employee contributions.

These graphs show a distribution of active participants by age and by years of service.

CHART 2

Distribution of Active Participants by Age as of December 31, 2006

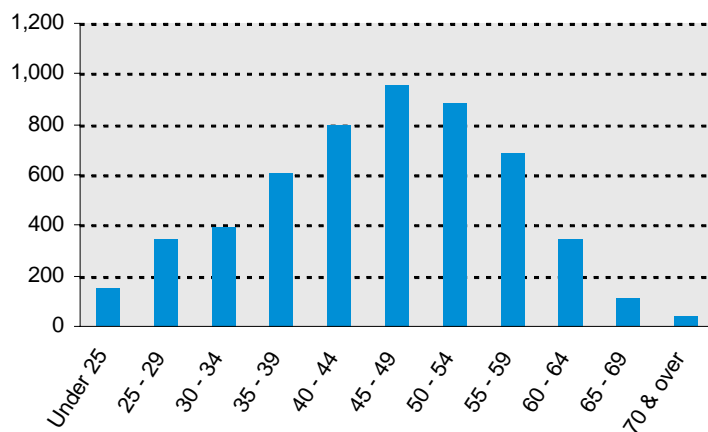
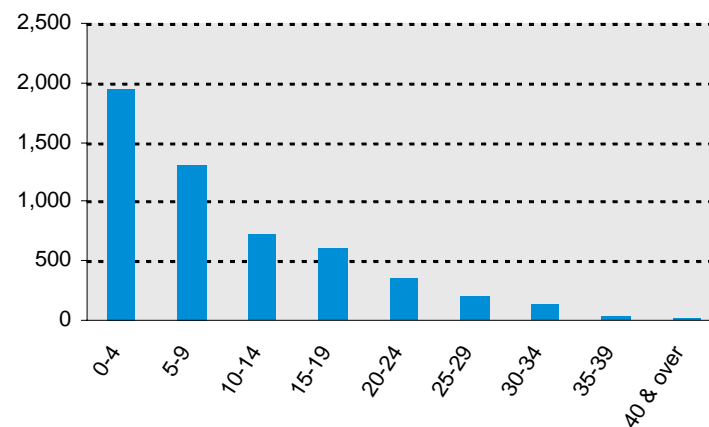


CHART 3

Distribution of Active Participants by Years of Service as of December 31, 2006



SECTION 2: Valuation Results for the Barnstable County Retirement System

Retired Participants and Beneficiaries

As of December 31, 2006, 2,007 retired participants and 260 beneficiaries were receiving total monthly benefits of \$3,080,098, excluding COLAs reimbursed by the Commonwealth. For comparison, in the previous valuation, there were 1,947 retired participants and 254 beneficiaries receiving monthly benefits of \$2,889,643, excluding COLAs reimbursed by the Commonwealth.

These graphs show a distribution of the current retired participants and beneficiaries based on their monthly amount and age, by type of pension.

CHART 4

Distribution of Retired Participants and Beneficiaries by Type and by Monthly Amount as of December 31, 2006

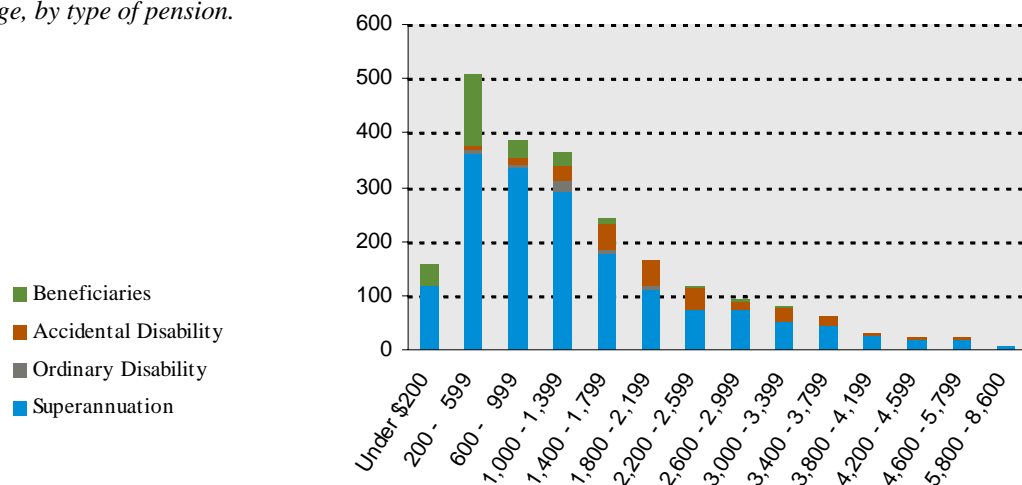
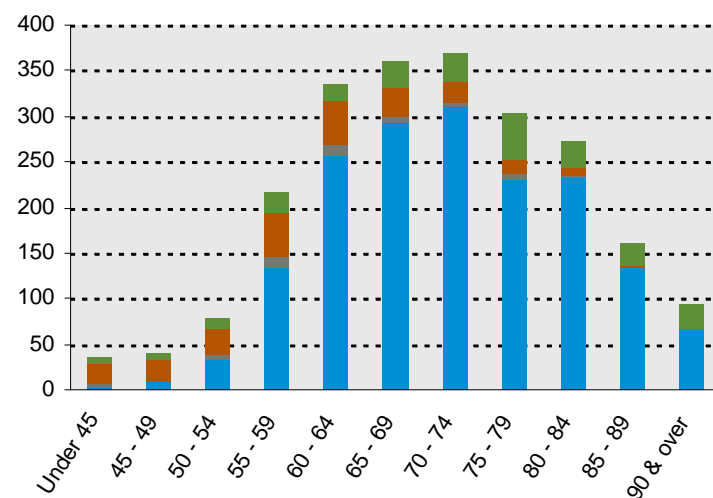


CHART 5

Distribution of Retired Participants and Beneficiaries by Type and by Age as of December 31, 2006



SECTION 2: Valuation Results for the Barnstable County Retirement System

B. FINANCIAL INFORMATION

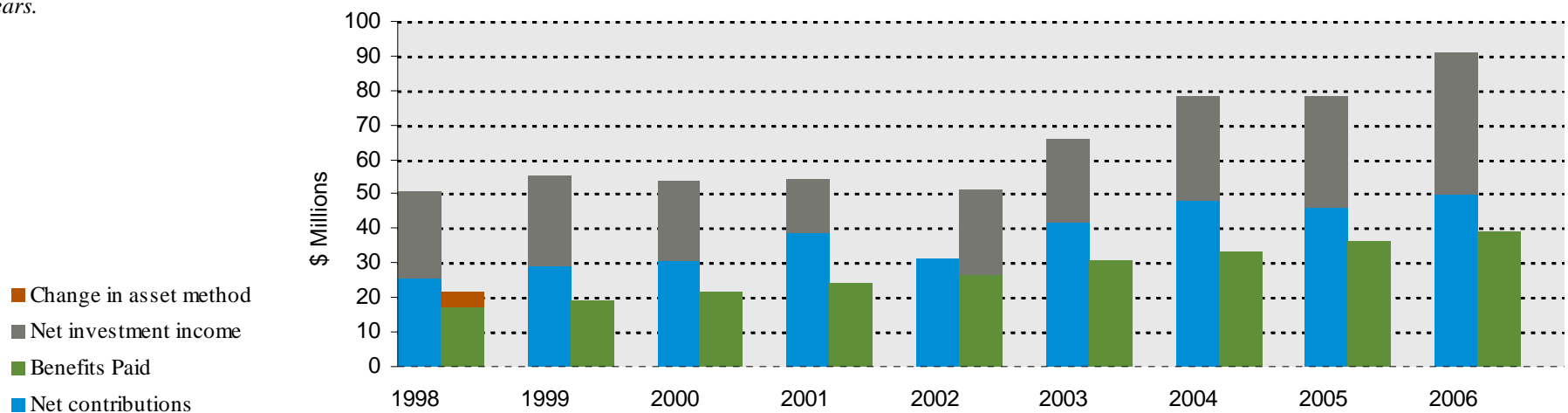
Retirement plan funding anticipates that, over the long term, both net contributions (less administrative expenses) and net investment earnings (less investment fees) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits C and D.

The chart depicts the components of changes in the actuarial value of assets over the last nine years.

CHART 6

Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended December 31, 1998 – 2006



SECTION 2: Valuation Results for the Barnstable County Retirement System

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

The chart shows the determination of the actuarial value of assets as of the valuation date.

CHART 7

Determination of Actuarial Value of Assets

	Year Ended December 31, 2006
1. Actuarial value of assets at the beginning of the year	\$465,637,984
2. Contributions, less benefit payments and expenses during the year	10,631,477
3. Average actuarial value: (1) + [50% of (2)]	470,953,722
4. Expected investment income: .0825 x (3)	38,853,682
5. Preliminary actuarial value of assets at the end of the year: (1) + (2) + (4)	515,123,143
6. Market value of assets at the end of the year	526,487,863
7. Adjustment toward market value: 20% of [(6) - (5)]	2,272,944
8. Adjustment to be within 20% corridor	0
9. Final actuarial value of assets: (5) + (7) + (8)	<u>\$517,396,087</u>
10. Actuarial value as a percentage of market value: (9) ÷ (6)	98.3%

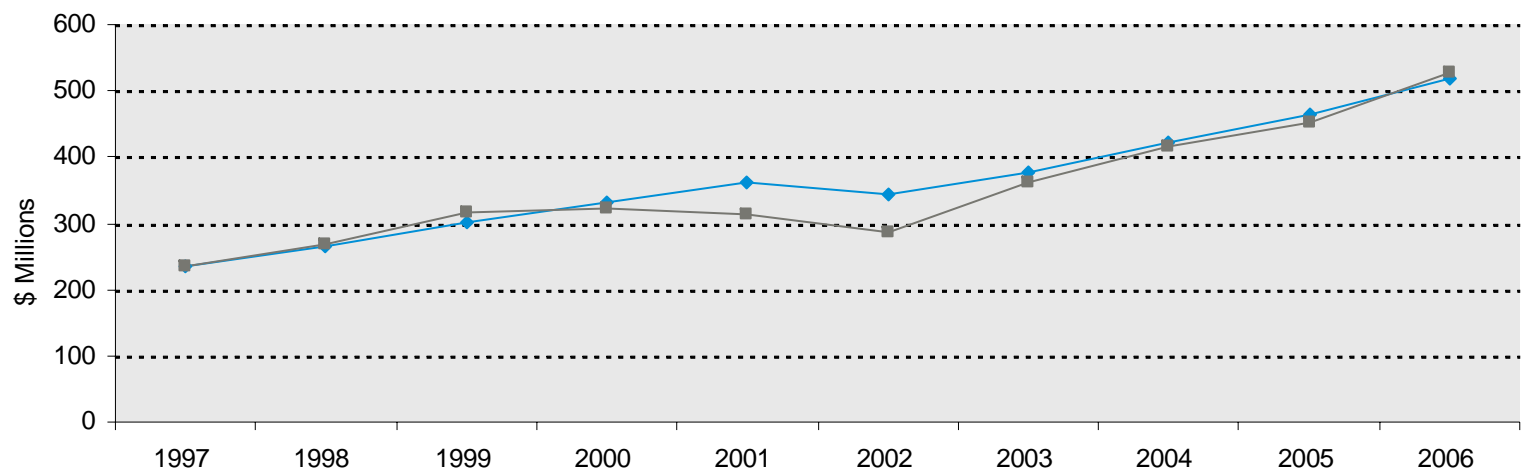
SECTION 2: Valuation Results for the Barnstable County Retirement System

Both the actuarial value and market value of assets are representations of the Barnstable County Retirement System's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the Barnstable County Retirement System's liabilities are compared to its assets to determine what portion, if any, remains unfunded. Amortization of the unfunded liability is an important element in determining the contribution requirement.

This chart shows the change in the actuarial value of assets versus the market value over the past ten years.

CHART 8

Actuarial Value of Assets vs. Market Value of Assets as of December 31, 1997 – 2006



SECTION 2: Valuation Results for the Barnstable County Retirement System

C. ACTUARIAL EXPERIENCE

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term

development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total loss is \$2,853,225. A discussion of the major components of the actuarial experience is on the following pages.

This chart provides a summary of the actuarial experience during the past year.

CHART 9

Actuarial Experience for Year Ended December 31, 2006

1. Net gain from investments*	\$2,272,944
2. Net (loss) from administrative expenses	-13,049
3. Net (loss) from other experience**	<u>-5,113,120</u>
4. Net experience loss: (1) + (2) + (3)	<u>-\$2,853,225</u>

* Details in Chart 10

** Details in Chart 13

SECTION 2: Valuation Results for the Barnstable County Retirement System

Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Barnstable County Retirement System's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets is 8.25%. The actual rate of return on an actuarial basis for the 2006 plan year was 8.73% .

Since the actual return for the year was greater than the assumed return, the Barnstable County Retirement System experienced an actuarial gain during the year ended December 31, 2006 with regard to its investments.

This chart shows the gain/(loss) due to investment experience.

CHART 10

Actuarial Value Investment Experience for Year Ended December 31, 2006

1. Actual return	\$41,126,626
2. Average value of assets	470,953,722
3. Actual rate of return: (1) ÷ (2)	8.73%
4. Assumed rate of return	8.25%
5. Expected return: (2) x (4)	\$38,853,682
6. Actuarial gain/(loss): (1) – (5)	<u>\$2,272,944</u>

SECTION 2: Valuation Results for the Barnstable County Retirement System

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the last nine years, including five-year and nine-year averages.

Based upon this experience and future expectations, we have maintained the assumed rate of return of 8.25%.

CHART 11

Investment Return – Actuarial Value vs. Market Value: 1998 - 2006

Year Ended December 31	Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent
1998	\$20,857,870	8.71%	\$25,259,093	10.55%
1999	26,183,189	9.72	37,613,550	13.74
2000	22,811,404	7.48	-2,443,230	-0.76
2001	15,615,391	4.59	-24,671,005	-7.46
2002	-24,583,451	-6.73	-32,053,900	-10.16
2003	24,466,937	7.02	64,521,174	22.15
2004	29,977,086	7.77	39,712,304	10.77
2005	32,279,863	7.54	27,463,017	6.53
2006	<u>41,126,626</u>	8.73	<u>62,425,689</u>	13.61
Total	\$188,734,915		\$197,826,692	
	Five-year average return	5.17%		8.74%
	Nine-year average return	5.99%		6.55%

Note: Each year's yield is weighted by the average asset value in that year.

SECTION 2: Valuation Results for the Barnstable County Retirement System

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

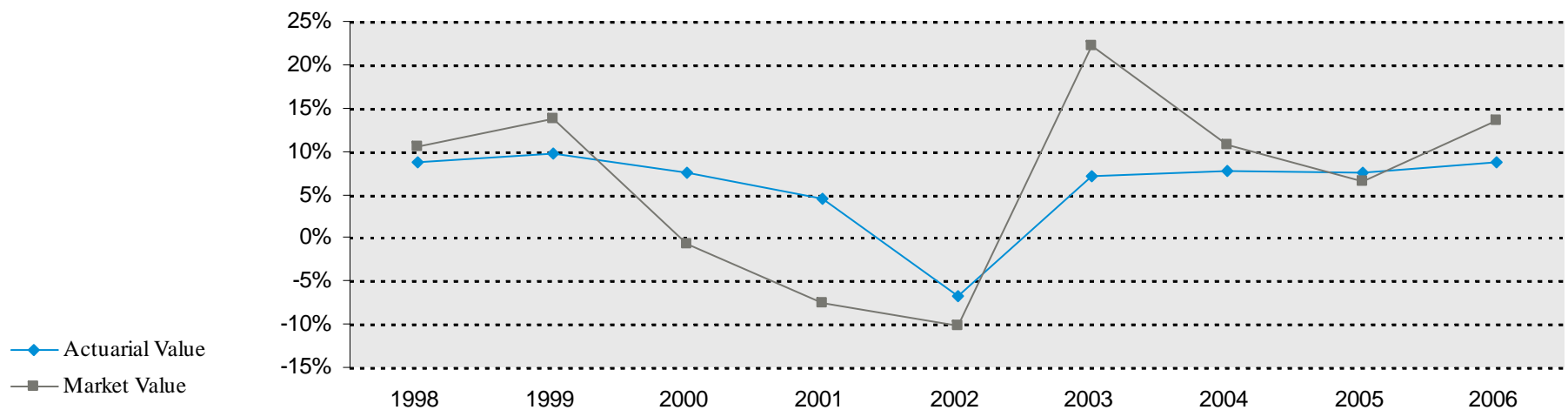
Administrative Expenses

Administrative expenses for the year ended December 31, 2006 totalled \$1,032,312 compared to the assumption of \$1,000,000. This resulted in a loss of -\$13,049 for the year, including an adjustment for interest. We have maintained the assumption of \$1,000,000 for the current year.

This chart illustrates how this leveling effect has actually worked over the years 1998 - 2006.

CHART 12

Market and Actuarial Rates of Return for Years Ended December 31, 1998 - 2006



SECTION 2: Valuation Results for the Barnstable County Retirement System

Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected),

- the number of disability retirements, and
- salary increases different than assumed.

The net loss from this other experience for the year ended December 31, 2006 amounted to (\$5,113,120) which is 0.6% of the actuarial accrued liability.

A brief summary of the demographic gain/(loss) experience of the Barnstable County Retirement System for the year ended December 31, 2006 is shown in the chart below.

The chart shows elements of the experience gain/(loss) for the most recent year.

CHART 13

Experience Due to Sources Other Than Investments and Administrative Expenses

1. Liabilities higher than expected for retired members and beneficiaries	-\$1,567,607
2. Salary increases more than expected for continuing actives	-582,099
3. Miscellaneous	<u>-2,963,414</u>
4. Total	-\$5,113,120

SECTION 2: Valuation Results for the Barnstable County Retirement System

D. RECOMMENDED CONTRIBUTION

The amount of annual contribution required to fund the Plan is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability.

The recommended contribution is based on a 1-year amortization of the 1992 ERI liability and a 21-year increasing amortization of the 2002 and 2003 ERI liabilities and the remaining unfunded liability. Amortization payments all increase at 4.50% per year.

Because the fiscal 2008 appropriation has already been budgeted at \$34,360,912, the results of this valuation will first be reflected in the fiscal 2009 appropriation of \$36,943,817. Exhibit G in Section 3 shows the recommended contribution through 2028 based on this funding schedule. The current funding schedule fully amortizes the unfunded liability by June 30, 2028.

The chart compares this valuation's recommended contribution with the prior valuation.

CHART 14
Recommended Contribution

	Year Beginning January 1			
	2007		2006	
	Amount	% of Payroll	Amount	% of Payroll
1. Total normal cost	\$32,433,194	14.33%	\$30,772,580	14.28%
2. Administrative expenses	1,000,000	0.44%	1,000,000	0.46%
3. Expected employee contributions	<u>-20,384,094</u>	<u>-9.00%</u>	<u>-19,211,677</u>	<u>-8.92%</u>
4. Employer normal cost: (1) + (2) + (3)	\$13,049,100	5.76%	\$12,560,903	5.83%
5. Actuarial accrued liability	825,863,068		765,747,723	
6. Actuarial value of assets	<u>517,396,087</u>		<u>465,637,984</u>	
7. Unfunded actuarial accrued liability: (5) - (6)	\$308,466,981		\$300,109,739	
8. Employer normal cost projected to July 1, 2007 and 2006, adjusted for timing	13,606,477	5.88%	13,097,427	5.95%
9. Projected unfunded actuarial accrued liability	320,939,104		312,243,957	
10. Payment on projected unfunded actuarial accrued liability, adjusted for timing	21,732,644	9.39%	20,493,965	9.30%
11. Preliminary recommended contribution: (8) + (10)	<u>\$35,339,121</u>	<u>15.27%</u>	<u>\$33,591,392</u>	<u>15.25%</u>
12. Budgeted appropriation	<u>\$34,360,912</u>	<u>14.85%</u>	<u>\$32,038,146</u>	<u>14.55%</u>
13. Projected payroll	\$231,429,394		\$220,269,001	

Notes: Amortization payments increase at 4.50% per year.

Recommended contributions are assumed to be paid on July 1 and December 31.

SECTION 2: Valuation Results for the Barnstable County Retirement System

The recommended contribution is based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions.

Reconciliation of Recommended Contribution

The chart below details the changes in the recommended contribution from the prior valuation to the current year's valuation.

The chart reconciles the contribution from the prior valuation to the amount determined in this valuation.

CHART 15

Reconciliation of Preliminary Recommended Contribution from July 1, 2006 to July 1, 2007

Preliminary Recommended Contribution as of July 1, 2006	\$33,591,392
Expected increase	\$1,511,613
Effect of investment gain	-159,755
Effect of net other changes	<u>395,871</u>
Total change	<u>\$1,747,729</u>
Preliminary Recommended Contribution as of July 1, 2007	\$35,339,121

SECTION 2: Valuation Results for the Barnstable County Retirement System

E. INFORMATION REQUIRED BY THE GASB

Governmental Accounting Standards Board (GASB) reporting information provides standardized information for comparative purposes of governmental pension plans. This information allows a reader of the financial statements to compare the funding status of one governmental plan to another on relatively equal terms.

Critical information to the GASB is the historical comparison of GASB required contribution to the actual contributions. This comparison demonstrates whether a plan is being funded within the range of GASB reporting requirements. Chart 16 below presents a graphical representation of this information for the Plan.

The other critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the

actuarial value of assets of the plan to the liabilities of the plan as calculated under GASB. High ratios indicate a well-funded plan with assets sufficient to pay most benefits. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors.

Although GASB requires that the actuarial value of assets be used to determine the funded ratio, Chart 17 shows the funded ratio calculated using both the actuarial value of assets (62.65%) and the market value of assets (63.75%).

The details regarding the calculations of these values and other GASB numbers may be found in Section 4, Exhibits II, III, and IV.

These graphs show key GASB factors.

CHART 16
Required Versus Actual Contributions

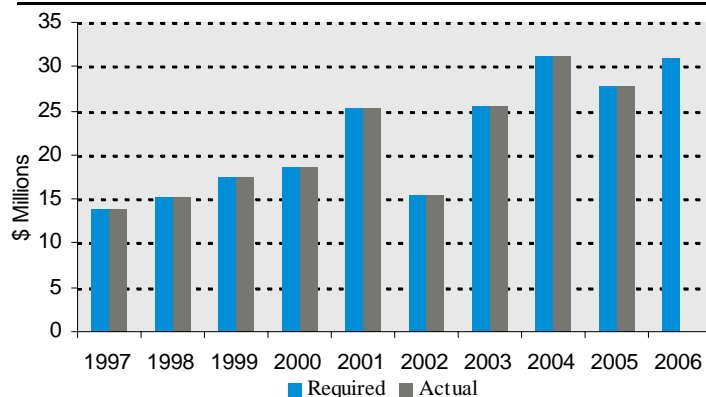
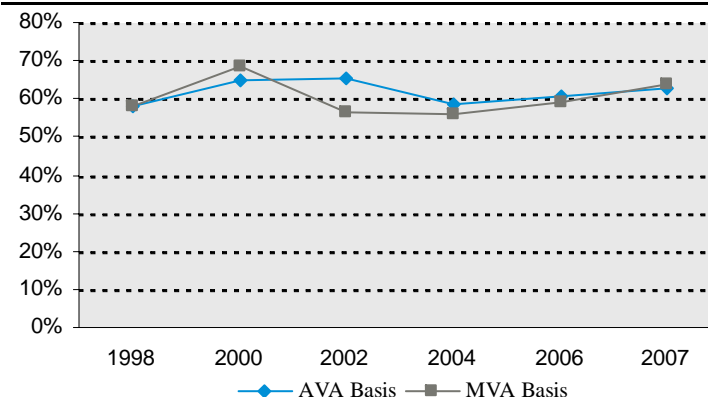


CHART 17
Funded Ratio



SECTION 3: Supplemental Information for the Barnstable County Retirement System

EXHIBIT A

Table of Plan Coverage

	Year Ended December 31		Change From Prior Year
Category	2006	2005	
Active participants in valuation:			
Number	5,314	5,269	0.9%
Average age	46.2	46.1	N/A
Average service	9.8	9.6	N/A
Total payroll	\$216,027,771	\$205,640,594	5.1%
Average payroll	40,653	39,028	4.2%
Member contributions	158,604,093	147,380,128	7.6%
Number with unknown age and/or service information	0	0	N/A
Inactive participants entitled to a return of their employee contributions	670	688	-2.6%
Inactive participants with a vested right to a deferred or immediate benefit	117	77	51.9%
Retired participants:			
Number in pay status	1,701	1,649	3.2%
Average age	71.9	71.7	N/A
Average monthly benefit	\$1,345	\$1,303	3.2%
Disabled participants:			
Number in pay status	306	298	2.7%
Average age	60.6	59.6	N/A
Average monthly benefit	\$2,032	\$1,967	3.3%
Beneficiaries in pay status	260	254	2.4%

SECTION 3: Supplemental Information for the Barnstable County Retirement System

EXHIBIT B

Participants in Active Service as of December 31, 2006 By Age, Years of Service, and Average Payroll

Age	Years of Service									
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	148	146	2	--	--	--	--	--	--	--
	\$28,260	\$28,191	\$33,257	--	--	--	--	--	--	--
25 – 29	349	296	53	--	--	--	--	--	--	--
	\$35,488	\$33,882	\$44,459	--	--	--	--	--	--	--
30 – 34	391	206	152	33	--	--	--	--	--	--
	\$40,762	\$34,064	\$46,857	\$54,502	--	--	--	--	--	--
35 – 39	607	229	198	115	62	3	--	--	--	--
	\$43,950	\$33,730	\$45,090	\$55,281	\$55,952	\$66,460	--	--	--	--
40 – 44	794	269	191	122	142	67	3	--	--	--
	\$43,512	\$28,945	\$40,480	\$53,732	\$58,596	\$58,724	\$73,447	--	--	--
45 – 49	953	309	230	143	118	97	47	9	--	--
	\$40,883	\$30,000	\$35,358	\$40,427	\$51,683	\$62,088	\$64,765	\$68,142	--	--
50 – 54	886	231	214	135	105	69	76	54	2	--
	\$41,036	\$29,748	\$32,939	\$39,434	\$47,265	\$52,726	\$62,146	\$68,494	\$45,647	--
55 – 59	688	162	153	100	97	71	42	41	20	2
	\$40,969	\$28,378	\$35,400	\$39,765	\$42,753	\$51,101	\$54,528	\$59,549	\$78,384	\$61,245
60 – 64	349	77	83	53	50	24	31	20	6	5
	\$39,524	\$29,392	\$32,809	\$41,983	\$40,621	\$45,124	\$46,529	\$55,387	\$71,618	\$97,706
65 – 69	108	20	29	16	17	13	3	8	1	1
	\$34,124	\$29,976	\$32,713	\$26,434	\$44,215	\$36,379	\$36,938	\$38,277	\$15,956	\$56,731
70 & over	41	6	5	10	7	7	2	2	1	1
	\$31,927	\$17,673	\$26,278	\$28,527	\$46,733	\$33,508	\$48,537	\$30,889	\$44,721	\$21,069
Total	5,314	1,951	1,310	727	598	351	204	134	30	9
	\$40,653	\$30,948	\$38,630	\$45,015	\$50,348	\$54,738	\$58,470	\$61,412	\$71,646	\$76,536

SECTION 3: Supplemental Information for the Barnstable County Retirement System

EXHIBIT C

Summary Statement of Income and Expenses

	Year Ended December 31, 2006	Year Ended December 31, 2005
Contribution income:		
Employer contributions	\$31,044,132	\$27,846,430
Employee contributions	19,753,749	19,027,004
Federal grant reimbursement contributions	122,894	122,481
Less administrative expenses	<u>-1,032,312</u>	<u>-780,532</u>
Net contribution income	\$49,888,463	\$46,215,383
Investment income	<u>41,126,626</u>	<u>32,279,864</u>
Total income available for benefits	\$91,015,089	\$78,495,247
Less benefit payments:		
Pensions and annuities	-\$36,212,088	-\$33,686,139
Net 3(8)(c) reimbursements	274,695	466,774
Refunds to members	<u>-3,319,593</u>	<u>-2,805,483</u>
Net benefit payments	-\$39,256,986	-\$36,024,848
Change in reserve for future benefits	\$51,758,103	\$42,470,399

SECTION 3: Supplemental Information for the Barnstable County Retirement System

EXHIBIT D

Development of the Fund Through December 31, 2006

Year Ended December 31	Employer Contributions	Employee Contributions	Other Contributions	Net Investment Return*	Administrative Expenses	Benefit Payments	Actuarial Value of Assets at End of Year
1998	\$15,295,566	\$10,775,581	\$56,031	\$20,857,870	\$589,498	\$17,101,740	\$264,581,470
1999	17,448,995	12,006,583	46,617	26,183,190	567,839	19,302,305	300,396,711
2000	18,674,787	12,671,911	50,636	22,811,404	591,022	21,486,621	332,527,806
2001	25,399,346	13,850,025	69,141	15,615,391	607,973	23,941,840	362,911,896
2002	15,545,341	16,241,497	63,541	-24,583,451	623,022	26,476,435	343,079,367
2003	25,561,567	16,407,178	116,269	24,466,937	626,414	30,687,605	378,317,300
2004	31,199,609	17,519,703	167,025	29,977,087	706,303	33,306,836	423,167,585
2005	27,846,430	19,027,004	122,481	32,279,864	780,532	36,024,848	465,637,984
2006	31,044,132	19,753,749	122,894	41,126,626	1,032,312	39,256,986	517,396,087

* Net of investment expenses.

SECTION 3: Supplemental Information for the Barnstable County Retirement System

EXHIBIT E

Development of Unfunded Actuarial Accrued Liability and (Gain)/Loss

1. Unfunded actuarial accrued liability at beginning of year		\$300,109,739
2. Normal cost at beginning of year		31,772,580
3. Total contributions		-50,920,775
4. Interest		
(a) For whole year on (1) + (2)	\$27,380,292	
(b) For half year on (3)	<u>-2,728,080</u>	
(c) Total interest		<u>24,652,212</u>
5. Expected unfunded actuarial accrued liability		\$305,613,757
6. Changes due to:		
(a) Interest (gain)	-\$2,272,944	
(b) Miscellaneous experience loss	<u>5,126,169</u>	
(c) Total changes		<u>2,853,225</u>
7. Unfunded actuarial accrued liability at end of year		<u>\$308,466,981</u>

SECTION 3: Supplemental Information for the Barnstable County Retirement System

EXHIBIT F

Table of Amortization Bases as of July 1, 2007

Type	Annual Payment*	Years Remaining	Outstanding Balance
1992 ERI liability	\$55,566	1.00	\$54,477
2002 ERI liability	467,136	21.00	6,914,988
2003 ERI liability	176,839	21.00	2,617,742
Remaining unfunded liability	<u>21,033,103</u>	21.00	<u>311,351,897</u>
Total	\$21,732,644		\$320,939,104

Notes: Amortization payments increase at 4.50% per year.

Payments include adjustment for timing.

Does not reflect adjustment to set fiscal 2008 appropriation to budgeted amount.

SECTION 3: Supplemental Information for the Barnstable County Retirement System

EXHIBIT G

Funding Schedule

(1) Fiscal Year Ended June 30	(2) Employer Normal Cost	(3) Amortization of 1992 ERI Liability	(4) Amortization of 2002 ERI Liability	(5) Amortization of 2003 ERI Liability	(6) Amortization of Remaining Unfunded Liability	(7) Total Plan Cost: (2) + (3) + (4) + (5) + (6)	(8) Total Unfunded Accrued Liability at Beginning of Fiscal Year
2008	\$13,606,477	\$55,566	\$467,136	\$176,839	\$20,054,894	\$34,360,912	\$320,939,104
2009	14,218,768	-	488,157	184,797	22,052,095	36,943,817	325,390,771
2010	14,858,613	-	510,124	193,113	23,044,440	38,606,290	328,118,372
2011	15,527,251	-	533,080	201,803	24,081,440	40,343,574	329,985,729
2012	16,225,977	-	557,068	210,884	25,165,104	42,159,033	330,873,034
2013	16,956,146	-	582,136	220,374	26,297,534	44,056,190	330,648,399
2014	17,719,173	-	608,332	230,291	27,480,923	46,038,719	329,166,757
2015	18,516,536	-	635,707	240,654	28,717,565	48,110,462	326,268,673
2016	19,349,780	-	664,314	251,483	30,009,855	50,275,432	321,779,052
2017	20,220,520	-	694,208	262,800	31,360,298	52,537,826	315,505,732
2018	21,130,443	-	725,448	274,626	32,771,512	54,902,029	307,237,959
2019	22,081,313	-	758,093	286,984	34,246,230	57,372,620	296,744,730
2020	23,074,972	-	792,207	299,898	35,787,310	59,954,387	283,772,993
2021	24,113,346	-	827,856	313,394	37,397,739	62,652,335	268,045,695
2022	25,198,447	-	865,110	327,497	39,080,637	65,471,691	249,259,659
2023	26,332,377	-	904,040	342,234	40,839,266	68,417,917	227,083,284
2024	27,517,334	-	944,722	357,634	42,677,033	71,496,723	201,154,044
2025	28,755,614	-	987,234	373,728	44,597,500	74,714,076	171,075,780
2026	30,049,617	-	1,031,660	390,546	46,604,387	78,076,210	136,415,752
2027	31,401,850	-	1,078,084	408,120	48,701,585	81,589,639	96,701,452
2028	32,814,933	-	1,126,598	426,486	50,893,156	85,261,173	51,417,135

Notes: Amortization payments after fiscal 2009 increase at 4.50% per year.

Recommended contributions are assumed to be paid on July 1 and December 31.

Assumes contribution of budgeted amount for fiscal 2008.

SECTION 3: Supplemental Information for the Barnstable County Retirement System

EXHIBIT H

Unit Allocation of ERI Amortizations for Fiscal 2008

Unit	1992 ERI	2002 ERI	2003 ERI	Total
Barnstable County	--	\$169,511	\$24,703	\$194,214
Barnstable Fire	--	3,786	--	3,786
Barnstable Housing Authority	\$5,505	3,400	--	8,905
Bourne Recreation	5,629	14,962	--	20,591
Bourne Water	20,130	4,338	--	24,468
C.O.M.M. Fire	--	--	4,333	4,333
Cape Cod Mosquito	--	2,373	--	2,373
County Hospital	--	6,735	--	6,735
Dennis Housing	--	2,266	--	2,266
Hyannis Fire	8,947	1,496	--	10,443
Mashpee Water	--	--	3,772	3,772
Town of Barnstable	--	90,490	--	90,490
Town of Bourne	--	70,305	--	70,305
Town of Brewster	--	14,854	--	14,854
Town of Eastham	--	20,845	--	20,845
Town of Mashpee	5,014	33,271	--	38,285
Town of Nantucket	--	--	104,763	104,763
Town of Truro	10,341	12,146	--	22,487
Town of Wellfleet	--	12,722	--	12,722
Town of Yarmouth	--	--	35,618	35,618
Veterans District	--	3,636	--	3,636
Yarmouth Housing	--	--	3,650	3,650
Total	\$55,566	\$467,136	\$176,839	\$699,541

SECTION 3: Supplemental Information for the Barnstable County Retirement System

EXHIBIT I

Definitions of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Assumptions or actuarial assumptions:

The estimates on which the cost of the Plan is calculated including:

- (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;
- (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) Retirement rates — the rate or probability of retirement at a given age;
- (d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

Normal cost:

The amount of contributions required to fund the benefit allocated to the current year of service.

Actuarial accrued liability for actives:

The equivalent of the accumulated normal costs allocated to the years before the valuation date.

Actuarial accrued liability for pensioners:

The single sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

Unfunded actuarial accrued liability:

The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There are many approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.

SECTION 3: Supplemental Information for the Barnstable County Retirement System

**Amortization of the unfunded
actuarial accrued liability:**

Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.

Investment return:

The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.

SECTION 4: Reporting Information for the Barnstable County Retirement System

EXHIBIT I

Summary of Actuarial Valuation Results

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 260 beneficiaries in pay status)	2,267
2. Participants active during the year ended December 31, 2006 with total accumulated contributions of \$158,604,093 and projected payroll of \$226,391,633	5,314
3. Inactive participants with a right to a return of their employee contributions as of December 31, 2006	670
4. Inactive participants with a vested right to a deferred or immediate benefit as of December 31, 2006	117

The actuarial factors as of the January 1, 2007 valuation date are as follows:

1. Normal cost, including administrative expenses	\$33,433,194
2. Expected employee contributions	<u>-20,384,094</u>
3. Employer normal cost: (1) + (2)	\$13,049,100
4. Actuarial accrued liability	825,863,068
Retired participants and beneficiaries	\$364,620,065
Active participants	448,178,229
Inactive participants	13,064,774
5. Actuarial value of assets (\$526,487,863 at market value)	517,396,087
6. Unfunded actuarial accrued liability: (4) - (5)	308,466,981

The actuarial factors projected to July 1, 2007 are as follows:

1. Employer normal cost projected to July 1, 2007, adjusted for timing	\$13,606,477
2. Projected unfunded actuarial accrued liability	320,939,104
3. Payment on projected unfunded actuarial accrued liability, adjusted for timing	21,732,644
4. Preliminary recommended contribution: (1) + (3)	<u>\$35,339,121</u>
5. Budgeted appropriation based on 2006 actuarial valuation	\$34,360,912
6. Projected payroll	231,429,394

Notes: Amortization payments increase at 4.50% per year.

Recommended contributions are assumed to be paid on July 1 and December 31.

SECTION 4: Reporting Information for the Barnstable County Retirement System

EXHIBIT II

Supplementary Information Required by the GASB – Schedule of Employer Contributions

Plan Year Ended December 31	Annual Required Contributions	Actual Contributions	Percentage Contributed
1997	\$13,988,800	\$13,988,800	100.0%
1998	15,295,400	15,295,400	100.0%
1999	17,448,700	17,448,700	100.0%
2000	18,674,787	18,674,787	100.0%
2001	25,399,346	25,399,346	100.0%
2002	15,545,341	15,545,341	100.0%
2003	25,561,567	25,561,567	100.0%
2004	31,199,609	31,199,609	100.0%
2005	27,846,430	27,846,430	100.0%
2006	31,044,132	31,044,132	100.0%

SECTION 4: Reporting Information for the Barnstable County Retirement System**EXHIBIT III****Supplementary Information Required by the GASB – Schedule of Funding Progress**

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b) - (a)] / (c)
01/01/1993	\$97,194,645	\$226,430,792	\$129,236,147	42.92%	\$97,074,725	133.13%
01/01/1996	157,044,089	276,107,221	119,063,132	56.88%	108,456,079	109.78%
01/01/1998	235,247,660	404,215,695	168,968,035	58.20%	121,161,677	139.46%
01/01/2000	300,396,700	462,462,500	162,065,800	64.96%	152,293,100	106.42%
01/01/2002	362,911,896	553,531,966	190,620,070	65.56%	173,610,557	109.80%
01/01/2004	378,317,300	647,655,411	269,338,111	58.41%	190,614,004	141.30%
01/01/2006	465,637,984	765,747,723	300,109,739	60.81%	215,474,180	139.28%
01/01/2007	517,396,087	825,863,068	308,466,981	62.65%	226,391,633	136.25%

SECTION 4: Reporting Information for the Barnstable County Retirement System

EXHIBIT IV

Supplementary Information Required by the GASB

Valuation date	January 1, 2007
Actuarial cost method	Entry Age Normal Cost Method
Amortization method	Payments increase at 4.50% per year
Remaining amortization period	1 year from July 1, 2007 for 1992 Early Retirement Incentive, 21 years from July 1, 2007 for 2002 and 2003 Early Retirement Incentives and remaining unfunded liability
Asset valuation method	5-year smoothing of investment returns greater (less) than expected
Actuarial assumptions:	
Investment rate of return	8.25%
Projected salary increases	5.00%
Cost of living adjustments	3.00% of first \$12,000 of retirement income
Plan membership:	
Retired participants and beneficiaries receiving benefits	2,267
Terminated participants entitled to a return of their employee contributions	670
Terminated participants with a vested right to a deferred or immediate benefit	117
Active participants	<u>5,314</u>
Total	8,368

SECTION 4: Reporting Information for the Barnstable County Retirement System

EXHIBIT V

Actuarial Assumptions and Actuarial Cost Method

Mortality Rates:

<i>Healthy:</i>	1994 Group Annuity Mortality Table
<i>Disabled:</i>	1994 Group Annuity Mortality Table with 5 year set forward

Termination Rates before Retirement:

Age	Groups 1 and 2 - Rate (%)			
	Mortality		Disability	Withdrawal
	Male	Female		
20	0.05	0.03	0.06	7.94
25	0.07	0.03	0.09	7.72
30	0.08	0.04	0.11	7.22
35	0.09	0.05	0.18	6.28
40	0.11	0.07	0.24	5.15
45	0.16	0.10	0.43	3.98
50	0.26	0.14	0.61	2.56
55	0.44	0.23	0.92	0.94
60	0.80	0.44	1.23	0.09

*Notes: 50% of the disability rates shown represent accidental disability.
20% of the accidental disabilities will die from the same cause as the disability.*

SECTION 4: Reporting Information for the Barnstable County Retirement System

Age	Group 4 - Rate (%)			
	Mortality		Disability	Withdrawal
	Male	Female		
20	0.05	0.03	0.12	0.00
25	0.07	0.03	0.18	0.00
30	0.08	0.04	0.22	0.00
35	0.09	0.05	0.35	0.00
40	0.11	0.07	0.48	0.00
45	0.16	0.10	0.85	0.00
50	0.26	0.14	1.22	0.00
55	0.44	0.23	1.84	0.00
60	0.80	0.44	2.46	0.00

Notes: 50% of the disability rates shown represent accidental disability.
60% of the accidental disabilities will die from the same cause as the disability.

Retirement Rates:

Age	Rate per year (%)		
	Groups 1 and 2		Group 4
	Male	Female	
45 – 49	--	--	1.0
50 – 51	1.0	1.5	2.0
52	1.0	2.0	2.0
53	1.0	2.5	5.0
54	2.0	2.5	7.5
55	2.0	5.5	15.0
56 – 57	2.5	6.5	10.0
58	5.0	6.5	10.0
59	6.5	6.5	15.0
60	12.0	5.0	20.0
61	20.0	13.0	20.0
62	30.0	15.0	25.0
63	25.0	12.5	25.0
64	22.0	18.0	30.0
65	40.0	15.0	100.0

SECTION 4: Reporting Information for the Barnstable County Retirement System

Retirement Rates: (continued)		Rate per year (%)			
		Age	Groups 1 and 2		Group 4
			Male	Female	
		66 – 67	25.0	20.0	--
		68	30.0	25.0	--
		69	30.0	20.0	--
		70	100.0	100.0	--
Unknown Data for Participants:		Same as those exhibited by participants with similar known characteristics.			
Age of Spouse:		Females 3 years younger than their spouses.			
Percent Married:		75%			
Net Investment Return:		8.25%			
Salary Increases:		5.00% for all future years			
Interest on Employee Contributions:		3.5%			
Administrative Expenses:		\$1,000,000 for calendar 2007.			
Total Service:		Total creditable service reported in the data.			
2006 Salary:		2006 salaries are equal to salaries provided in the data except for participants missing salary, where salaries were calculated from annualized contributions divided by the contribution rates provided.			
Actuarial Value of Assets:		A preliminary actuarial value is first determined by taking the actuarial value of assets at the beginning of the year and adding assumed investment earnings (at the assumed actuarial rate of return) and the net new money during the year (contributions less benefit payments and administrative expenses). Twenty percent of the difference between the market value of assets and the preliminary actuarial value of assets is added to the preliminary actuarial value. In order that the actuarial value not differ too significantly from the market value of assets, the final actuarial value of assets must be within 20% of the market value of assets.			

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Actuarial Cost Method:

Entry Age Normal Actuarial Cost Method. Entry Age is the attained age of the participant minus total creditable service. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary.

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EXHIBIT VI

Summary of Plan Provisions

This exhibit summarizes the major provisions of Chapter 32 of the Laws of Massachusetts.

Plan Year: January 1 – December 31

Retirement Benefits

Employees covered by the Contributory Retirement Law are classified into one of four groups depending on job classification. Group 1 comprises most positions in state and local government. It is the general category of public employees. Group 4 comprises mainly police and firefighters. Group 2 is for other specified hazardous occupations. (Officers and inspectors of the State Police are classified as Group 3.)

The annual amount of the retirement allowance is based on the member's final three-year average salary multiplied by the number of years and full months of creditable service at the time of retirement and multiplied by a percentage according to the following table based on the age of the member at retirement:

Age Last Birthday at Date of Retirement			
Percent	Group 1	Group 2	Group 4
2.5	65 or over	60 or over	55 or over
2.4	64	59	54
2.3	63	58	53
2.2	62	57	52
2.1	61	56	51
2.0	60	55	50
1.9	59	--	49
1.8	58	--	48
1.7	57	--	47
1.6	56	--	46
1.5	55	--	45

A member's final three-year average salary is defined as the greater of the highest consecutive three-year average annual rate of regular compensation and the average

SECTION 4: Reporting Information for the Barnstable County Retirement System

annual rate of regular compensation received during the last three years of creditable service prior to retirement. The \$30,000 cap on salary used in a benefit determination for any employee hired after January 1, 1979 has been removed.

The maximum annual amount of the retirement allowance is 80 percent of the member's final three-year average salary. Any member who is a veteran also receives an additional yearly retirement allowance of \$15 per year of creditable service, not exceeding \$300. The veteran allowance is paid in addition to the 80 percent maximum.

Employee Contributions

<u>Date of Hire</u>	<u>Contribution Rate</u>
Prior to January 1, 1975	5%
January 1, 1975 – December 31, 1983	7%
January 1, 1984 – June 30, 1996	8%
July 1, 1996 onward	9%

In addition, employees hired after December 31, 1978 contribute an additional 2 percent of salary in excess of \$30,000.

Employees hired after 1983 who leave with less than five years of credited service receive no interest on their contributions, and employees who leave with five but less than ten years receive one-half the rate of regular interest otherwise payable.

Retirement Benefits (Superannuation)

Members of Group 1, 2 or 4 may retire upon the attainment of age 55. For retirement at ages below 55, twenty years of creditable service is required.

Members who terminate before age 55 with ten or more years of creditable service are eligible for a retirement allowance upon the attainment of age 55 (provided they have not withdrawn their accumulated deductions from the Annuity Savings Fund of the System).

Ordinary Disability Benefits

A member who is unable to perform his/her job due to a non-occupational disability will receive a retirement allowance if he/she has ten or more years of creditable service and has not reached age 55. The annual amount of such allowance shall be

SECTION 4: Reporting Information for the Barnstable County Retirement System

determined as if the member retired for superannuation at age 55, based on the amount of creditable service at the date of disability. For veterans, there is a minimum benefit of 50 percent of the member's most recent year's pay plus an annuity based on his own contributions.

Accidental Disability Benefit

For a job-connected disability, the benefit is 72 percent of the member's most recent annual pay plus an annuity based on his/her own contributions, plus additional amounts for surviving children. Benefits are capped at 75 percent of annual rate of regular compensation for employees who become members after January 1, 1988.

Death Benefits

In general, the beneficiary of an employee who dies in active service will receive a refund of the employee's own contributions. Alternatively, if the employee were eligible to retire on the date of death, a spouse's benefit will be paid the full amount the employee would have received under Option C (previously, two-thirds of the amount). The surviving spouse of a member who dies with two or more years of credited service has the option of a refund of the employee's contributions or a monthly benefit regardless of eligibility to retire, if they were married for at least one year. There is also a minimum widow's pension of \$500 per month, and there are additional amounts for surviving children.

If an employee's death is job-connected, the spouse will receive 72 percent of the member's most recent annual pay, in addition to a refund of the member's accumulated deductions, plus additional amounts for surviving children.

"Heart And Lung Law" And Cancer Presumption

Any case of hypertension or heart disease resulting in total or partial disability or death to a uniformed fireman or permanent member of a police department is presumed to have been suffered in the line of duty, unless the contrary is shown by competent evidence. Any case of disease of the lungs or respiratory tract resulting in total disability or death to a uniformed fireman is presumed to have been suffered in the line of duty, unless the contrary is shown by competent evidence. There is an additional presumption for uniformed firemen that certain types of cancer are job-related if onset occurs while actively employed or within five years of retirement.

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Options

Members may elect to receive a full retirement allowance payable for life under Option A. Under Option B a member may elect to receive a lower monthly allowance in exchange for a guarantee that at death any contributions not expended for annuity payments will be refunded to the beneficiary. Option C allows the member to take a lesser retirement allowance in exchange for providing a survivor with two-thirds of the lesser amount. Option C pensioners who retire in 1988 or later will have benefits converted from a reduced to a full retirement if the beneficiary predeceases the retiree.

Post-Retirement Benefits

The Board has adopted the provisions of Section 51 Chapter 127 of the Acts of 1999, which provide that the Retirement Board may approve an annual COLA in excess of the Consumer Price Index but not to exceed a 3% COLA on the first \$12,000 of a retirement allowance. Cost-of-living increases granted prior to July 1, 1998 are reimbursed by the Commonwealth and not reflected in this report.

Changes in Plan Provisions:

There have been no changes in plan provisions since the last valuation.